

REMARKS

This Amendment is submitted in reply to the Office Action dated January 15, 2003. Applicants respectfully request reconsideration and further examination of the patent application under 37 C.F.R. § 1.111.

Upon entry of the foregoing Amendment, Claims 1-10, 12 and 24-26 are pending in the application. The amendments are believed to introduce no new matter, and their entry is respectfully requested. Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections.

Summary of the Examiner's Rejections

Claim 12 was rejected under 35 U.S.C. 112 (second paragraph) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention.

Claims 1-4, 6-9, 11 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shukla (US 6,458,275) in view of Thurn (US 4,076,550).

Claims 5 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shukla (US 6,458,275) in view of Thurn (US 4,076,550) in further view of Perlman (US 5,858,770).

Summary of Amendment

Applicants have cancelled Claim 11 (without prejudice), amended Claims 4, 8 and 12 and added have Claims 24-26 to more particularly define the present invention.

Remarks regarding §112 (second paragraph) rejection

Claim 12 was rejected under 35 U.S.C. 112 (second paragraph) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Applicants amended Claim 12 such that the name of the molecular formula $C_{10}H_{20}O_5Si$ is now recited as "3-(trimethoxysilyl)propyl methacrylate". As such, Applicants respectfully request removal of the §112 (second paragraph) rejection.

Remarks regarding § 103(a) rejections

Claims 1-4, 6-9, 11 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shukla (US 6,458,275) in view of Thurn (US 4,076,550). Applicants respectfully submit that the Examiner can not use Skula and Thurn and satisfy the basic requirements of a *prima facie* case of obviousness with respect to the pending independent Claims 1 and 8. For the Examiner to establish a *prima facie* case of obviousness there must be some suggestion or motivation, either in the references or in the knowledge generally available to one

of ordinary skill in the art, to modify the reference or to combine the reference teachings. Applicants respectfully submit that Shukla can not be properly combined with Thurn to teach the claimed limitations of "wherein said frame and said layer are attached and bound to one another by an adhesive mixed with an additive that interacts with the adhesive, said frame and said layer in a manner which strengthens a bond between said frame and said layer" in Claim 1. Claim 8 recites similar limitations. Because, Shukla's multiwell equilibrium dialysis system does not use an adhesive that has an additive which can strengthen a bond between the components of the multiwell equilibrium dialysis system. And, Thurn's organosilane additive which can be used as an adhesive promotor between glass and polystyrene does not mention the use of a multiwell plate. In other words, Shukla does not disclose an additive that can be mixed with an adhesive and Thurn does not disclose a multiwell. Perlman does not cure these defects. Again, there must be some suggestion or motivation to combine the references such that they teach the desirability of the present invention, neither of which can be established in Shukla or Thurn. The suggestion used by the Examiner indicates that the Examiner is relying on improper hindsight to reconstruct the Applicant's invention. Therefore, Applicants respectfully submit that independent Claims 1 and 8 and their associated dependent Claims 2-7, 9-10, 12 and 24-26 are patentable over Shukla, Thurn and/or Perlman.

In addition, Shukla and Thurn when taken alone or in combination fail to disclose, teach or suggest the claimed limitations in the pending independent Claim 8 and dependent Claims 4 and 24. In particular, Shukla and Thurn fail to disclose a pyrolyzed glass (e.g., layer, lower plate) that has reactive groups which interact with an additive (e.g., silane monomer) in an adhesive to strengthen a bond between the adhesive and the layer or lower plate of the multiwell plate (see Claims 4 and 8). In addition, Shukla and Thurn fail to disclose a plasma treated polymeric material (e.g., frame, upper plate) that has reactive groups which interact with an additive (e.g., silane monomer) to strengthen a bond between the adhesive and the frame or upper plate of the multiwell plate (see Claims 8 and 24). It should be noted that pending Claims 4, 8 and 24 are not product-by-process claims because they recite a final product namely pyrolyzed glass and plasma treated polymeric material. Therefore, Applicants respectfully submit that independent Claim 8 and dependent Claims 4 and 24 are patentable over Shukla and/or Thurn.

Referring to pending dependent Claims 7, 12 and 25-26, Applicants respectfully submit that 3-(trimethoxysilyl)propyl methacrylate (Claims 7 and 12), 3-(mercaptopropyl)trimethoxy silane (Claim 25) and tris2-(methoxyethoxy)vinyl silane (Claim 26) are not disclosed in Thurn. Therefore, Applicants respectfully submit that dependent Claims 7, 12, and 25-26 are patentable.

Conclusion

From the foregoing, Applicants respectfully submit that all of the stated grounds of rejections have been properly traversed, accommodated, or rendered moot. Accordingly, Applicants respectfully request reconsideration of all outstanding rejections and allowance of pending Claims 1-10, 12 and 24-26.

If the Examiner believes, for any reasons, that personal communication will expedite prosecution of this application the Examiner is invited to telephone the undersigned at the number provided.

Enclosed is a USPTO Credit Card Payment Form filled out for \$ 54.00 to cover the fees associated with the addition of dependent Claims 24-26. If this is incorrect, the Commissioner is authorized to charge any fees which may be required for this paper to Deposit Account No. 50-1481.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims

Claim 11 has been cancelled without prejudice.

Claims 4, 8 and 12 have been amended and Claims 24-26 as follows:

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-- 4. (Once Amended) The multiwell plate of Claim 3, wherein said glass [has been cleaned by pyrolysis] is a pyrolyzed glass that has reactive groups which interact with said additive to strengthen a bond between said adhesive and said layer.

8. (Once Amended) A multiwell plate forming a plurality of sample wells for holding samples to be assayed, said multiwell plate comprising:

an upper plate that forms sidewalls of the sample wells, said upper plate made from a plasma treated polymeric material; [and]

a lower plate that forms bottom walls of the sample wells, said lower plate made from a pyrolyzed glass, wherein said upper plate was [is] joined to said lower plate by an adhesive mixed with a silane monomer that polymerized [polymerizes] to form a compatible network with the adhesive [and also interacts with said upper plate and said lower plate] to strengthen a bond between said upper plate and said lower plate;

said silane monomer included silane functional groups that interacted with silane reactive groups in said plasma treated polymeric material to strengthen a bond between said adhesive and said upper plate; and

said silane monomer included silane functional groups that interacted with silane reactive groups in said pyrolyzed glass to strengthen a bond between said adhesive and said lower plate.

12. (Once Amended) The multiwell plate of Claim 8, wherein said silane monomer is 3-(trimethoxysilyl)propyl methacrylate [has a molecular formula $C_{10}H_{20}O_5Si$].

24. (Added) The multiwell plate of Claim 1, wherein said polymeric material is a plasma treated polymeric material that has reactive groups which interact with said additive to strengthen a bond between said adhesive and said frame.

25. (Added) The multiwell plate of Claim 1, wherein said additive is 3-(mercaptopropyl)trimethoxy silane.

26. (Added) The multiwell plate of Claim 1, wherein said additive is tris2-(methoxyethoxy)vinyl silane. --

PENDING CLAIMS

1. A multiwell plate for use in assaying samples, comprising:
a frame that forms sidewalls of at least one well, the frame being formed from a polymeric material;
and
a layer that forms a bottom wall of the at least one well, the layer being formed from an inorganic material, wherein said frame and said layer are attached and bound to one another by an adhesive mixed with an additive that interacts with the adhesive, said frame and said layer in a manner which strengthens a bond between said frame and said layer.

2. The multiwell plate of Claim 1, wherein said polymeric material is polystyrene.

3. The multiwell plate of Claim 1, wherein said inorganic material is glass.

4. (Once Amended) The multiwell plate of Claim 3, wherein said glass is a pyrolyzed glass that has reactive groups which interact with said additive to strengthen a bond between said adhesive and said layer.

5. The multiwell plate of Claim 1, wherein said adhesive is a non-cytotoxic adhesive.

6. The multiwell plate of Claim 1, wherein said additive is a silane monomer.

7. The multiwell plate of Claim 1, wherein said additive is 3-(trimethoxysilyl)propyl methacrylate.

8. (Once Amended) A multiwell plate forming a plurality of sample wells for holding samples to be assayed, said multiwell plate comprising:
an upper plate that forms sidewalls of the sample wells, said upper plate made from a plasma treated polymeric material;
a lower plate that forms bottom walls of the sample wells, said lower plate made from a pyrolyzed glass, wherein said upper plate was joined to said lower plate by an adhesive mixed with a silane monomer that polymerized to form a compatible network with the adhesive to strengthen a bond between said upper plate and said lower plate;

said silane monomer included silane functional groups that interacted with silane reactive groups in said plasma treated polymeric material to strengthen a bond between said adhesive and said upper plate; and

said silane monomer included silane functional groups that interacted with silane reactive groups in said pyrolyzed glass to strengthen a bond between said adhesive and said lower plate.

9. The multiwell plate of Claim 8, wherein said polymeric material is polystyrene.

10. The multiwell plate of Claim 8, wherein said adhesive mixed with the silane monomer is a non-cytotoxic adhesive.

12. (Once Amended) The multiwell plate of Claim 8, wherein said silane monomer is 3-(trimethoxysilyl)propyl methacrylate.

24. (Added) The multiwell plate of Claim 1, wherein said polymeric material is a plasma treated polymeric material that has reactive groups which interact with said additive to strengthen a bond between said adhesive and said frame.

25. (Added) The multiwell plate of Claim 1, wherein said additive is 3-(mercaptopropyl)trimethoxy silane.

26. (Added) The multiwell plate of Claim 1, wherein said additive is tris2-(methoxyethoxy)vinyl silane.